ABSTRACT

A method of operating a micromechanical scanning apparatus includes the steps of identifying a radius of curvature value for a micromechanical mirror and modifying a laser beam to compensate for the radius of curvature value. The

5   identifying step includes the steps of measuring the far-field optical beam radius of a laser beam reflected from the micromechanical mirror. The measured far-field optical beam radius is then divided by a theoretical far-field optical beam radius reflected from an ideal mirror to yield a ratio value M. An analytical expression for M is curve-fitted to experimental data for M with the focal-length as a fitting parameter.

10 The focal-length value determined by this procedure, resulting in a good fit between the analytical curve and the experimental data, is equal to half the radius of curvature of the micromechanical mirror. The micromechanical scanning apparatus is operated by controlling the oscillatory motion of a first micromechanical mirror with a first micromechanical spring and regulating the oscillatory motion of a second

15 micromechanical mirror with a second micromechanical spring.